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Mark E. Mancuso* (mark.mancuso@wustl.edu). *A framework for free partial matrix convexity.*

Biconvexity and notions of partial convexity are ubiquitous in systems engineering and the area of semidefinite programming. We provide a general framework, known as Γ -convexity, for partial matrix convexity that includes many well-studied examples as special cases. Hahn-Banach separation theorems via monic Γ -pencils are discussed. Γ -convexity for free polynomials is also examined for certain cases of interest. (Received August 26, 2019)